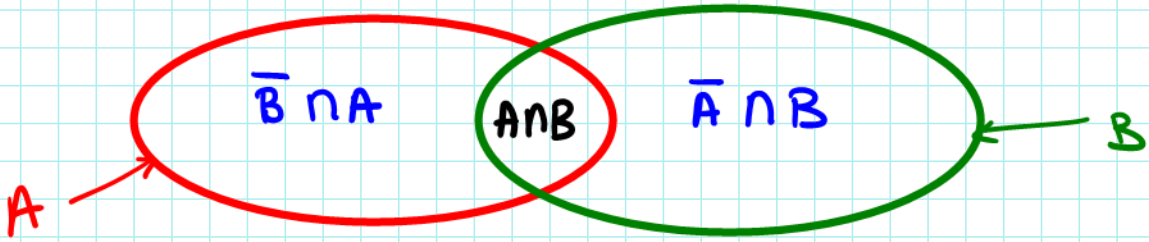


$$P(A \cap \bar{B}) = P(A) - P(A \cap B)$$

$$P(\bar{A} \cap B) = P(B) - P(A \cap B)$$

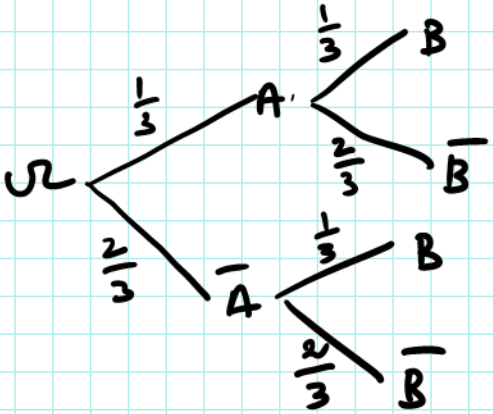
$$P(A \cup B) = P(A \cap \bar{B}) + P(A \cap B) + P(\bar{A} \cap B)$$

$$= P(A) - P(A \cap B) + P(A \cap B) + P(B) - P(A \cap B)$$

Donc $$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

Si A et B sont incompatibles alors $P(A \cup B) = P(A) + P(B)$

A et B sont independantes $\Leftrightarrow$ $P(A \cap B) = P(A) \times P(B)$



$P(B/A) = P(B)$

- $P(A) = \frac{1}{3}$
- $P(A \cap B) = \frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$
- $P(B) = P(A \cap B) + P(\bar{A} \cap B)$
  $= \frac{1}{9} + \frac{2}{9} = \frac{1}{3}$

$P(A) \times P(B) = \frac{1}{9} = P(A \cap B)$

Donc A et B sont independants.